Remarks

The present invention, as now claimed, sets forth an apparatus for determining the location of an article with an RFID transponder by using (i) a plurality of support members containing a plurality of antenna at different location sites in which more than one of the antennae at the different location sites receives identification data broadcast by an RFID transponder, and (ii) control circuitry connected to the plurality of antenna which determines which of the antennae receives the broadcast data from the transponder and ultimately the location of the RFID transponder from such data. This invention works whether the articles containing the RFID transponder are positioned side by side on a support member or stacked one on top of another on the support member. It is purposely designed to allow for more than one antenna at a different location site to receive data from the transponder and still provide accurate article location.

The Examiner rejected claims 1-8 and 10 under 35 U.S.C. 102(e) as being unpatentable over Moore. It is respectfully requested that this rejection be withdrawn.

The present invention, as now claimed, clearly distinguishes over the cited art and is not anticipated by it.

The Moore reference does show a tracking system using an RFID transponder. The apparatus and method of Moore, however, does not allow for data broadcast from one RFID tag/transponder to be received by antennae in different nesting stations/ location sites. Moore merely describes a system with multiple nesting sites with antennae in which an article with RFID tag communicates only with antennae at that nesting station. As the title states, Moore is disclosing a tracking system to determine at which nesting station/location site an article with RFID tag is located. The Moore patent does not disclose or allow for an RFID tag to communicate with more than one location/nesting site which is disclosed and claimed in the present invention. The broadcast distance from an RFID transponder in Moore is kept small. In any system in which the RFID tag communicates with more than one location site anti-collision technology is needed which is not mentioned/provided in this reference.

In view of the above, independent claim 1 as now presented is believed to be in condition for allowance and not anticipated by Moore. Anticipation is established only when a single prior art reference discloses, either expressly or under the principles of inherency, each and every element of the claimed invention.

Claims 2-8 and 10 all depend from claim 1 and accordingly would also be in condition for allowance for the reasons stated above.

The Examiner rejected claim 9 under 35 U.S.C. 103 (a) as being unpatentable over Moore as applied to claim 1 and further in view of Bauer et al. It is respectfully requested that this rejection be withdrawn. Claim 9 depends from claim1; and for the reasons set forth above for claim 1, claim 9 should be in condition for allowance.

The Examiner rejected claim 11 under 35 U.S.C. 103 (a) as being unpatentable over Moore as applied to claim 1 above and further in view of Zimmerman et al. Claim 11 depends from claim 1; and for the reasons set forth above for claim 1, claim 11 should be in condition for allowance.

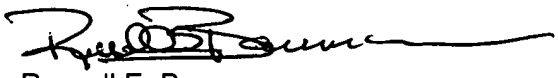
The Examiner rejected claim 12 under 35 U.S.C 103 (a) as being unpatentable over Moore in view of Bauer et al. It is respectfully requested that this rejection be withdrawn.

For the reasons stated above, it is maintained that the Moore reference does not show the invention as now set forth in claim 12. Moreover, the Bauer et al. reference does not disclose determining in a three-dimension location of tags read by RFID reader. Page 10, paragraph 118 of the reference describes a self-test procedure in which tags situated within the shelves can be used to make sure the system is operational. It is describing a diagnostic test to determine operationability of the system in general and not in any way discloses determining the three-dimensional location of the transponder broadcasting the information.

In view of the above, it is believed the independent claim 12, as now presented, Is in condition for allowance.

For the above reasons, reconsideration by the Examiner, allowance of the claims as now presented and passing of the case to issuance are respectfully solicited.

Respectfully submitted,



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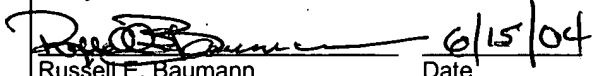

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COMPLETE LIST OF CLAIMS

1. (amended) Apparatus for locating an RFID transponder vertical location comprising:

an RFID transponder for broadcasting identification data;

a plurality of ~~antennae~~ antenna for ~~recovering~~receiving said identification data broadcast by said RFID transponder, said identification data from said RFID transponder capable of being received by more than one antenna at different location sites;

a plurality of support members at spaced apart vertical locations suitable for supporting said RFID transponder, and each of said spaced apart support members associated with at least one of said plurality of ~~antennae~~antenna; and

control circuitry connected to said plurality of antenna for determining which individual antenna at different location sites of said plurality of antenna receives said identification broadcast from said RFID transponder and for determining the location of said RFID transponder as a function of all of the antenna receiving said broadcast data and the support members associated with the antennae receiving said identification data.

2. (original) The apparatus of claim 1 wherein at least two transponders broadcast separate identification data.

3. (original) The apparatus of claim 1 wherein said antenna or loop antennas and the plane of the loop of the antenna is substantially coplanar with said support member.

4. (original) The apparatus of claim 1 wherein each of said support members includes at least two antennae located side by side, and wherein both the vertical and horizontal location of the transponder is determined.

5. (original) The apparatus off claim 1 wherein said RFID transponders are attached to a product or package.

6. (original) The apparatus of claim 1 further comprising a multiplicity of products or packages and a multiplicity of RFID transponders, each transponder for broadcasting different identification data, and at least one each associated with said multiplicity of products or packages.

7. (original) The apparatus of claim 1 wherein said support members at known vertical locations are a plurality of shelves stacked vertically.

8. (original) The apparatus of claim 7 wherein each of said shelves has two or more horizontal locations for supporting products or packages to which a transponder is attached, each shelf has an antenna corresponding to said each of said horizontal locations, and wherein both the vertical and horizontal location of the transponder is determined.

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9. (original) The apparatus of claim 1 and further including a multiplexer connected between said control circuitry and said plurality of antennas for selecting a pair of adjacent antennas.

10. (original) The apparatus of claim 1 wherein said RFID transponder stores power transmitted by one or more of said antennas for use to provide said transmitted identification data.

11. (original) The apparatus of claim 1 and further comprising computer circuitry for averaging the vertical location of antennae reading said transponder.

12. (amended) A method of locating an RFID transponder in space comprising the steps of:

broadcasting identification data from an RFID transponder;

receiving said broadcast identification data at a plurality of antenna at different location sites;

providing a plurality of spaced apart support members at known vertical locations suitable for supporting said RFID transponders, and each of said spaced apart support members associated with at least one of said plurality of ~~antennae~~antenna;

determining which antenna at the different location sites receives~~receive~~ identification data broadcast from said RFID transponder; and

determining the three-dimensional location of said transponder broadcasting said identification data as a function of the antennas receiving said information data and the support members associated with the antennas receiving said identification data.